

CLAIMS

What is claimed is:

1. A process for forming ceramic composites of an oxygen-ion conducting ceramic and an alkali-metal-ion conducting ceramic;
forming a shaped composite of a precursor ceramic of α - Al_2O_3 , or Ga_2O_3 , or mixtures thereof, and the oxygen-ion conducting ceramic such that a continuous matrix exists in the composite for both the precursor ceramic and oxygen-ion conductor,
subjecting the composite to a vapor containing the metal oxide of an alkali metal at sufficient temperature and for sufficient time to convert the precursor ceramic to an alkali-metal-ion conducting ceramic of alkali-metal- β - or β'' - X_2O_3 , where X is Al or Ga.

add
Al